THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method for obtaining a correction factor for measuring a concentration of gas in a liquid using a gas in liquid concentration measurement device, the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% gas in liquid and about 100% gas;

using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentrations versus actual concentration below the solubility threshold;

using the measured concentrations and the solubility threshold to fully define the first function and deducing a theoretical response at about the solubility threshold;

using the theoretical response at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration for the region above the solubility threshold; and

using the first function and the second function to generate the correction factor.

2. The method of claim 1 wherein sufficient measurements is one measurement between 0% and the solubility limit.

3. The method of claim 1 wherein sufficient measurements is at least two measurements.

4. The method of claim 1 wherein the known actual gas concentrations are less than about half of the gas concentration at the solubility limit.

5. The method of claim 1 wherein the first function and the second function are each linear.

6. The method of claim 1 wherein the correction factor is the difference between a value of the first function and an actual gas concentration corresponding to that value and the difference is recorded and applied to any measured concentrations corresponding to the value.

7. The he method of claim 1 wherein the correction factor is generated as the inverse functions of the first function and second function.

8. A method for obtaining a correction factor for measuring a concentration of gas in a liquid using a gas in liquid concentration measurement device, the method comprising:

obtaining the solubility threshold for the gas in the liquid;

ensuring that the device is calibrated for concentrations of about 0% gas in liquid and about 100% gas; using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold;

determining a measured concentration at about the solubility threshold;

using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor.

9. The method of claim 8 wherein the measured concentration at about the solubility threshold is measured using the device.

10. The method of claim 8 wherein the measured concentration at about the solubility threshold is determined based on the first function.

11. A method for preparing a concentration determining device for use to measure the concentration of a selected gas in a selected liquid, comprising:

obtaining a correction factor for measuring a concentration of gas in a liquid for the device by obtaining the solubility threshold for the selected gas in the selected liquid; ensuring that the device is calibrated for concentrations of about 0% selected gas in selected liquid and about 100% selected gas; using the device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold; determining a measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor; and

recording the correction factor for application to any measured results by the device.

12. The method as defined in claim 11 wherein the correction factor is plotted for the selected gas in the selected liquid.

13. The method as defined in claim 11 wherein the correction factor is included in a system for operating the device.

14. A method for determining a concentration of a selected gas in a selected liquid, the method comprising:

providing a device for determining gas in liquid concentrations;

using the device to obtain a concentration measurement of the selected gas in the selected liquid; and

applying a correction factor to the concentration measurement to produce an output concentration measurement of the selected gas in the selected liquid, the correction factor being obtained by using a device similar to the device for determining gas in liquid concentrations and obtaining the solubility threshold for the selected gas in the selected liquid; ensuring that the similar device is calibrated for concentrations of about 0% selected gas in selected liquid and about 100% selected gas; using the similar device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold; determining a measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor.

15. A method according to claim 14 wherein the device is a gas membrane device.

16. A system for controlling the operation of a device for determining gas in liquid concentrations comprising:

a function for obtaining a concentration measurement of a selected gas in a selected liquid;

a function for storing a correction factor for the selected gas in the selected liquid; and

a function for applying the correction factor to the concentration measurement to obtain an output measurement of the selected gas in the selected liquid.

17. The system as defined in claim 16, wherein the correction factor is obtained by:

using a device similar to the device for determining gas in liquid concentrations and obtaining the solubility threshold for the selected gas in the selected liquid; ensuring that the similar device is calibrated for concentrations of about 0% selected gas in selected liquid and about 100% selected gas; using the similar device to conduct sufficient measurements of the gas concentration at known actual concentrations to permit generation of a first function representing measured concentration versus actual concentration below the solubility threshold; determining a measured concentration at about the solubility threshold; using the measured concentration at about the solubility threshold to determine a second function representative of measured concentration versus actual concentration above the solubility threshold; and using the first function and the second function to generate the correction factor.

18. The system as defined in claim 17, wherein correction factors for a plurality of gas/liquid mixtures are stored in the system and the system includes a function for selecting at least one of (a) a gas of interest and (b) a liquid of interest.

19. They system as defined in claim 17, wherein the correction factors for a plurality of temperature and/or pressure conditions are stored in the system and the system includes a function for selecting a correction factor for a selected temperature and/or pressure condition.